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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/721,488	11/22/2000	Barry L. Hass	2204/A66	2160

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EXAMINER	
DAVIS, CYNTHIA L	
ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/721,488	HASS ET AL.	
	Examiner	Art Unit	
	Cynthia L Davis	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 5/11/2005.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-76 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-76 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5/11/2005 have been fully considered but they are not persuasive.

Applicant's arguments with respect to claims 1, 5-13, 17-25, 29-39, 43-49, 53-58, 62-69, and 72-75 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claims 2, 14, 26, 40, 50, 59, and 70, applicant's contention that the invention is used to connect *only* those destinations that are directly coupled hosts is not present in the claim language. The cited prior art reads on the language of the claims.

Regarding claims 3, 4, 15, 16, 27, 28, 41, 42, 51, 52, 60, 61, and 71, the cited prior art discloses a tunnel that can increase or decrease it's number of hops, thereby limiting the number of serviced destinations for that tunnel based on congestion. The claims describe a system that changes the number of hops from the end of the tunnel that a tunnel will service, based on congestion. These are essentially the same invention, and the claims are rendered obvious by the prior art.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 5-13, 17-25, 29-37, 39, 43-46, 48-49, 53-58, 62-67, 69, and 72-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goguen in view of Perlman.

Regarding claim 1, establishing a tunnel to said tail-end device as one of said number of routes is disclosed in Goguen, column 2, lines 29-33. Determining a number of said destinations that are serviced by said tail-end device to obtain serviced destination is disclosed in column 2, lines 29-33 (the tunnels are established between routers, which are further connected at each end to more network destinations; this information would be used for routing information through the tunnels). Routing information destined for said serviced destinations through said tunnel is disclosed in column 3, lines 7-9. The routing being done selectively based on a relationship between a destination address of the serviced destination and the tail-end device is missing from Goguen. However, Perlman discloses in column 9, lines 3-5 and 8-9, selectively forwarding messages through a tunnel based in part on whether the destination is reachable from the end-point of the tunnel, which indicates a relationship between the destination and the endpoint. It would have been obvious to one skilled in the art at the time of the invention to use the selective routing of Perlman in the system of Goguen. The motivation would be to permit filtering of traffic (see Perlman, column 4, line 8).

Regarding claim 13, tunnel establishment logic operably coupled to establish said tunnel to said tail-end device as one of said number of routes is disclosed in Goguen, column 2, lines 29-33. Determination logic operably coupled to determine a

number of said destinations that are serviced by said tail-end device to obtain serviced destinations is disclosed in column 2, lines 29-33 (the tunnels are established between routers, which are further connected at each end to more network destinations; this information would be used for routing information through the tunnels). Routing logic operably coupled to route information destined for said serviced destinations from said head-end device to said tail-end device through said tunnel is disclosed in column 3, lines 7-9. The routing being done selectively based on a relationship between a destination address of the serviced destination and the tail-end device is missing from Goguen. However, Perlman discloses in column 9, lines 3-5 and 8-9, selectively forwarding messages through a tunnel based in part on whether the destination is reachable from the end-point of the tunnel, which indicates a relationship between the destination and the endpoint. It would have been obvious to one skilled in the art at the time of the invention to use the selective routing of Perlman in the system of Goguen. The motivation would be to permit filtering of traffic (see Perlman, column 4, line 8).

Regarding claim 25, a computer program for controlling a head-end device to limit traffic volume in a tunnel between said head-end device and a tail-end device, said head-end device having a number of routes to said tail-end for routing information to various destinations is disclosed in Goguen, figure 3, and column 3, lines 35-56 (the MPLS TE system is embodied in a router, which is a type of computer, which would contain computer programs to implement its functionality). Tunnel establishment logic programmed to establish said tunnel to said tail-end device as one of said number of routes is disclosed in Goguen, column 2, lines 29-33. Determination logic programmed

to determine a number of said destinations that are serviced by said tail-end device to obtain serviced destinations is disclosed in column 2, lines 29-33 (the tunnels are established between routers, which are further connected at each end to more network destinations; this information would be used for routing information through the tunnels). Routing logic programmed to route information destined for said serviced destinations from said head-end device to said tail-end device through said tunnel is disclosed in column 3, lines 7-9. The routing being done selectively based on a relationship between a destination address of the serviced destination and the tail-end device is missing from Goguen. However, Perlman discloses in column 9, lines 3-5 and 8-9, selectively forwarding messages through a tunnel based in part on whether the destination is reachable from the end-point of the tunnel, which indicates a relationship between the destination and the endpoint. It would have been obvious to one skilled in the art at the time of the invention to use the selective routing of Perlman in the system of Goguen. The motivation would be to permit filtering of traffic (see Perlman, column 4, line 8).

Regarding claim 39, in an information communication network comprising a head-end device in communication with a tail-end device via a number of routes for routing information to various destinations, a method for limiting traffic volume in a tunnel is disclosed in Goguen, figure 3, and column 3, lines 35-56. Establishing said tunnel between said head-end device and said tail-end device as one of said number of routes receiving information for a destination by said head-end device is disclosed in Goguen, column 2, lines 29-33. Determining whether said destination is serviced by said tail-end device in column 2, lines 29-33 (the tunnels are established between

routers, which are further connected at each end to more network destinations; this information would be used for routing information through the tunnels). Routing said information by said head-end device to said tail-end device over said tunnel, if and only if said destination is serviced by said tail-end device is disclosed in column 3, lines 7-9. The routing being done selectively based on a relationship between a destination address of the serviced destination and the tail-end device is missing from Goguen. However, Perlman discloses in column 9, lines 3-5 and 8-9, selectively forwarding messages through a tunnel based in part on whether the destination is reachable from the end-point of the tunnel, which indicates a relationship between the destination and the endpoint. It would have been obvious to one skilled in the art at the time of the invention to use the selective routing of Perlman in the system of Goguen. The motivation would be to permit filtering of traffic (see Perlman, column 4, line 8).

Regarding claim 49, an apparatus for limiting traffic volume in a tunnel between said apparatus and a tail-end device, said apparatus having a number of routes to said tail-end for routing information to various destinations is disclosed in Goguen, figure 3, and column 3, lines 35-56. Tunnel establishment logic operably coupled to establish said tunnel to said tail-end device as one of said number of routes is disclosed in Goguen, column 2, lines 29-33. Receiving logic operably coupled to receive information for a destination is disclosed in column 3, line 21. Determination logic operably coupled to determine whether said destination is serviced by said tail-end device is disclosed in column 2, lines 29-33 (the tunnels are established between routers, which are further connected at each end to more network destinations; this information would be used for

routing information through the tunnels). Routing logic operably coupled to route said information to said tail-end device through said tunnel if and only if said destination is serviced by said tail-end device is disclosed in column 3, lines 7-9. The routing being done selectively based on a relationship between a destination address of the serviced destination and the tail-end device is missing from Goguen. However, Perlman discloses in column 9, lines 3-5 and 8-9, selectively forwarding messages through a tunnel based in part on whether the destination is reachable from the end-point of the tunnel, which indicates a relationship between the destination and the endpoint. It would have been obvious to one skilled in the art at the time of the invention to use the selective routing of Perlman in the system of Goguen. The motivation would be to permit filtering of traffic (see Perlman, column 4, line 8).

Regarding claim 58, a computer program for controlling a head-end device to limit traffic volume in a tunnel between said head-end device and a tail-end device, said head-end device having a number of routes to said tail-end for routing information to various destinations is disclosed in Goguen, figure 3, and column 3, lines 35-56 (the MPLS TE system is embodied in a router, which is a type of computer, which would contain computer programs to implement its functionality). Tunnel establishment logic programmed to establish said tunnel to said tail-end device as one of said number of routes is disclosed in Goguen, column 2, lines 29-33. Receiving logic programmed to receive information for a destination is disclosed in column 3, line 21. Determination logic programmed to determine whether said destination is serviced by said tail-end device is disclosed in column 2, lines 29-33 (the tunnels are established between

routers, which are further connected at each end to more network destinations; this information would be used for routing information through the tunnels). Routing logic programmed to route said information to said tail-end device through said tunnel if and only if said destination is serviced by said tail-end device is disclosed in column 3, lines 7-9. The routing being done selectively based on a relationship between a destination address of the serviced destination and the tail-end device is missing from Goguen. However, Perlman discloses in column 9, lines 3-5 and 8-9, selectively forwarding messages through a tunnel based in part on whether the destination is reachable from the end-point of the tunnel, which indicates a relationship between the destination and the endpoint. It would have been obvious to one skilled in the art at the time of the invention to use the selective routing of Perlman in the system of Goguen. The motivation would be to permit filtering of traffic (see Perlman, column 4, line 8).

Regarding claim 69, a communication system comprising a head-end device in communication with a tail-end device via a number of routes including a tunnel for routing information to various destinations is disclosed in Goguen, figure 3, and column 3, lines 35-56 (the network elements in figure 3 are routers, which are further connected to other destinations in the network, which are not shown in the figure). The head-end device being operably coupled to determine a number of said destinations that are serviced by said tail-end device and route information to said serviced destinations over said tunnel is disclosed in column 3, lines 7-9. The routing being done based on a relationship between a destination address of the serviced destination and the tail-end device is missing from Goguen. However, Perlman discloses in column 9, lines 3-5 and

8-9, selectively forwarding messages through a tunnel based in part on whether the destination is reachable from the end-point of the tunnel, which indicates a relationship between the destination and the endpoint. It would have been obvious to one skilled in the art at the time of the invention to use the selective routing of Perlman in the system of Goguen. The motivation would be to permit filtering of traffic (see Perlman, column 4, line 8).

Regarding claims 5, 17, 29, 43, 53, 62, and 72, wherein said serviced destinations comprise said tail-end device is disclosed in Goguen is disclosed in column 3, lines 7-9 (the packets are routed via the IP address to the tail-end device).

Regarding claims 6, 18, 30, and 73, wherein said serviced destinations comprise a destination for which said tunnel is a better route to said destination than a predetermined shortest path route to said destination is disclosed in Goguen, column 3, lines 38-47 and 51-56 (the tunnel route is better for some of the traffic to the serviced destinations than the shortest route, because if all the traffic goes on the shortest route there will be congestion on that route).

Regarding claims 7, 19, 31, 44, 54, and 63, wherein said determining comprises: calculating said shortest path route to said destination; determining a shortest path route metric associate with said shortest path route; determining a tunnel metric associated with said tunnel; and determining from said shortest path route metric and said tunnel metric that said tunnel is a better route to said destination than said shortest path route is disclosed in Goguen, column 3, lines 38-47 and 51-56 (the congestion

levels in the shortest path and in the tunnel path are determined, and the better route is selected, which may be the tunnel route).

Regarding claims 8, 20, 32, 45, 55, and 64 wherein said head-end device comprises a link state database, and wherein said determining comprises examining said link state database to determine which of said destinations are serviced by said tail-end device is disclosed in figure 1 of Goguen, element 140, and column 2, lines 10-13 (the router of figure 1 may be the head-end router).

Regarding claims 9, 21, 33, 46, 56, 65, and 74, wherein said tunnel comprises a label switched path from said head-end device to said tail-end device, and wherein said routing comprises affixing to said information a predetermined label associated with said label switched path for label switching of said information from said head-end device to said tail-end device by a number of intermediate devices is disclosed in Goguen, column 3, lines 18-34.

Regarding claims 10, 22, and 34, the head-end device comprising a forwarding table indicating one of said number of routes for each of said number of destinations and wherein said determining further comprises indicating said tunnel for each of said serviced destinations in said forwarding table is disclosed in Goguen, column 2, lines 50 (the routing table is the same as a forwarding table, the routing table contains mappings for tunnels).

Regarding claims 11, 23, and 35, determining from said forwarding table that said information is associated with said tunnel is disclosed in Goguen, column 3, lines 7-9 (the IP address used to route packets through the tunnel is in the routing table).

Regarding claims 12, 24, 36, 48, 57, 66, and 76, routing information destined for other than said serviced destinations over one of said number of routes other than said tunnel is disclosed in Goguen, column 3, line 57-column 4, line 8 (if the tunnel route is full of traffic going to the serviced destinations, other traffic will not be allowed to go through the tunnel).

Regarding claims 37 and 67, a computer program embodied in a computer readable medium is disclosed in Goguen, figure 3, and column 3, lines 35-56 (the MPLS TE system is embodied in a router, which is a type of computer, which would contain computer programs to implement its functionality).

1. Claims 2, 14, 26, 40, 50, 59, and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goguen in view of Perlman in further view of Chuah (6519254).

Regarding claims 2, 14, 26, 40, 50, 59, and 70, wherein said serviced destinations comprise directly connected hosts/subnets of said tail-end device is missing from Goguen. However, Chuah (6519254) discloses in figure 3, a tail end device (element 25) that is an ISP, which is directly connected to the destinations it services. It would have been obvious to one skilled in the art at the time of the invention to service destinations directly connected to the end of the tunnel. The motivation would be to use the tunnel as the fastest route to a group of destinations connected to the end of the tunnel.

2. Claims 3, 4, 15, 16, 27, 28, 41, 42, 51, 52, 60, 61, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goguen in view of Perlman in further view of Chuah (6496491).

Regarding claims 3, 15, 27, 41, 51, 60, and 71, the serviced destinations comprising destinations within a predetermined number of router hops of said tail-end device is missing from Goguen. However, Chuah (6496491) discloses in column 17, line 38-column 18, line 15, tunnels that can increase or decrease their number of hops based on congestion in the tunnel. The destinations serviced by such a tunnel would be with in a predetermined number of hops of the end of the tunnel, depending on where the system decides to put the end of the tunnel. It would have been obvious to one skilled in the art at the time of the invention to limit the number of hops that will be serviced by the end of the tunnel. The motivation would be to avoid congestion in the tunnel.

Regarding claims 4, 16, 28, 42, 52, and 61, monitoring tunnel utilization, wherein said determining further comprises dynamically increasing said predetermined number of router hops if said tunnel is under-utilized and decreasing said predetermined number of router hops if said tunnel is over-utilized is missing from Goguen. However, Chuah (6496491) discloses in column 17, line 38-column 18, line 15, tunnels that can increase or decrease their number of hops based on congestion in the tunnel. It would have been obvious to one skilled in the art at the time of the invention to increase or decrease the number of hops based on congestion. The motivation would be to optimize utilization of the tunnel resources.

3. Claims 38 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goguen in view of Perlman in further view of Goebel.

Regarding claims 38 and 68, a computer program is disclosed in Goguen, figure 3, and column 3, lines 35-56 (the MPLS TE system is embodied in a router, which is a type of computer, which would contain computer programs to implement its functionality). The computer program being embodied as a data signal is missing from Goguen. However, a computer program embodied as a data signal is disclosed in claim 18 of Goebel. It would have been obvious to one skilled in the art at the time of the invention to embody the computer program as a data signal. The motivation would be to be able to propagate the instructions in the computer program to the hardware it is designed to control.

4. Claims 47 and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goguen in view of Perlman in further view of Swallow.

Regarding claim 47, removing the label from said information and forwarding said information to said destinations based upon destination address information in said information is missing from Goguen. However, Swallow discloses this in column 3, lines 26-27. It would have been obvious to one skilled in the art at the time of the invention to remove the label after the packet has traversed the tunnel and before sending it to its final destination. The motivation would be to make the packet smaller to improve throughput, as the label is no longer needed.

Regarding claim 75, the head-end device being operably coupled to affix to said information a predetermined label associated with said label switched path for label switching of said information from said head-end device to said tail-end device by a number if intermediate devices is disclosed in Goguen, is disclosed in column 3, lines

18-34. The tail-end device being operably coupled to remove said label from said information and forward said information to said destinations based upon destination address information in said information is missing from Goguen. However, Swallow discloses this in column 3, lines 26-27. It would have been obvious to one skilled in the art at the time of the invention to remove the label after the packet has traversed the tunnel and before sending it to its final destination. The motivation would be to make the packet smaller to improve throughput, as the label is no longer needed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia L Davis whose telephone number is (571) 272-3117. The examiner can normally be reached on 8:30 to 6, Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLD
6/25/2005

CLD
6/25/05

ALPUS H. HSU
PRIMARY EXAMINER